

CLAIMS

1. A method for producing magnetically active shape memory metal alloy, said metal alloy containing nickel, manganese and gallium, **characterized** in that in
5 the method, the different components of the metal alloy are melted, and the melt is homogenized essentially at the melting temperature, and that the obtained metal alloy is cast, and the cast metal alloy is subjected to directional solidification at $10 - 100^{\circ}\text{C}$ below the liquidus temperature of said metal alloy.
- 10 2. A method according to claim 1, **characterized** in that in the production of a metal alloy containing nickel, manganese and gallium, the employed manganese and gallium are first melted into a nickel-manganese and/or nickel-gallium master alloy, which is cooled and crushed, and that into said master alloy, there is added precision metal in order to produce the metal alloy proper.
- 15 3. A method according to claim 1 or 2, **characterized** in that the melting of the metal alloy proper is carried out at the temperature of about 1300°C .
4. A method according to claim 1, 2 or 3, **characterized** in that the metal alloy
20 proper is homogenized by keeping the alloy at the melting temperature for about 1 hour.
5. A method according to any of the preceding claims, **characterized** in that the manufacturing steps of the metal alloy proper are carried out at an inert gas
25 atmosphere.
6. A method according to any of the preceding claims, **characterized** in that in order to prevent the evaporation of volatile components, i.e. manganese and gallium, the underpressure of the furnace used in the production of the metal
30 alloy proper is adjusted within the range $20 - 200\text{ mbar}$.

7. A method according to any of the preceding claims, **characterized** in that the solidification rate is within the range 0,1 – 50 mm/min.

8. A method according to claim 7, **characterized** in that the solidification rate is
5 within the range 1 – 20 mm/min.

9. A method according to any of the preceding claims, **characterized** in that the cast molding is homogenized within the temperature range 800 – 1000° C.

10 10. A method according to any of the preceding claims, **characterized** in that the nickel content in the metal alloy is within the range 45 – 60 atom %.

11. A method according to any of the preceding claims, **characterized** in that the manganese content in the metal alloy is within the range 15 – 35 atom %.

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12. A method according to any of the preceding claims, **characterized** in that the gallium content in the metal alloy is within the range 15 – 30 atom %.